District of Columbia Public Schools

Education Technology Plan 2005-2009

DRAFT

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Submitted by

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1.1 Background and Relationship of Technology to the DCPS Strategic Education Plan

The District of Columbia Public Schools (DCPS) are unique as they are both a local education agency (LEA) and a state education agency (SEA). DCPS has a total of 80,000 students, eighty percent attending the DC public schools, the largest LEA and twenty percent enrolled in seventeen (17) charter schools, each of which is an independent LEA. In addition, there are 2,000 students who use federally granted vouchers to attend private schools. This technology plan will be directed primarily at DCPS' role as SEA, but will address some specific LEA issues as they relate to the execution of NCLB. Although the implementation of the plan is obligatory for the DCPS public schools, its components will be recommended for, but not required of the charter schools.

Superintendent, Clifford B. Janey, Ed.D., and the Board of Education have recently released "*The Declaration of Education,*" a strategic plan for the District of Columbia Public Schools. The strategic plan is a very clear and thorough document on the direction of DCPS schools. The theme of the entire document is improved student learning. In order to accomplish the plan's objectives it is necessary to make extensive use of educational technology in the teaching and learning process. Below are the main goals and strategies of the school district with descriptions of the necessary systems that are needed to implement them.

1.2 Goals of *The Declaration of Education*

The Declaration of Education focuses on three main goals:

- **Goal 1:** To provide high quality teaching and learning in every classroom and every school
- **Goal 2:** To ensure management and operations to support high quality teaching and learning in every classroom
- **Goal 3:** Create a Culture of Transparency, open communications and collaboration to support high quality teaching and learning in every classroom in every School

The technology plan can positively impact all of the goals but the primary focus of the plan will be on three strategies related to Goal 1: ***Providing high quality teaching and Learning in every classroom and in every school***. It is necessary to utilize technology to address this goal. The following will be a

summary of the types of technology which will be utilized to support the strategies stated in the declaration of education related to providing high quality teaching and learning in every classroom and every schools.

Strategy 1. Develop strong and aligned academic standards, curriculum, instruction, and assessment supported by effective data systems.

This strategy will be supported by the implementation of an integrated Web-based instructional process system. This is Web-based system that will support teachers in implementing standards-based teaching. The components of a Web-based instructional process system are:

- The DCPS standards will be posted on the Website
- High quality lesson plans and instructional resources linked to the DCPS standards that will be shared by staff.
- An assessment delivery and storage system which includes:
  - formative assessment that teachers can give multiple times during the year to ascertain progress on the learning of standards and support modification of instruction,
  - reliable items related to standards that teachers can use to inform classroom instruction on an ongoing basis
  - on-line delivery of the annual test to ensure rapid return of assessments.
- An item bank that will have reliable assessment items that teachers can use to assess standards in the classroom
- Data-driven decision-making tools that will allow teachers and schools to make data-driven decisions to improve instruction at the individual student, class and grade level on an ongoing basis.

The integrated standards, assessment, and data-driven decision making system is central to the district meeting the objectives it has set for the coming years including the development and implementation of clear, rigorous standards in nine subject matter areas by 2008, the development of high quality standards-driven educational resources, the development of standards-based tests, the utilization of new data systems, providing more support for teachers and the implementation of a system of continuous improvement in academic performance.

Strategy 2. Create a System of effective schools with multiple paths toward completion and success.

This strategy is targeted at increased achievement in all schools by utilizing flexible approaches and providing support based on the needs of individual schools. The strategy is based on the classification of a continuum of schools in need of reward, improvement, corrective action, and restructuring.

The core system to support effective schools will be the Divisional Superintendents and Charter School Information System. This system will provide each divisional superintendent and the director of charter schools, with an exception reporting system that will track the performance of all schools in the areas of curriculum progress, teacher quality, absence, expenditures, formative assessment, work orders, discipline etc. The system will allow the divisional superintendents to monitor the operation and performance of all of their schools. This system will provide exception reporting on key variables, so that the divisional superintendent will know which schools are in need of support and oversight and what best practices can be shared.

The divisional superintendents and charter school information system will be of primary importance in addressing such issues as knowing when to provide effective help to low performing schools, expanding and strengthening rigorous academic programs, creating instructional threads, planning changes to alternative education programs, improving school climate, and tracking the impact of movement to a uniform grade structure.

Strategy 3: Ensure the recruitment and retention of high quality instructional staff by providing systematic opportunities and support for professional improvement.

A critical component of improving results is the recruitment, retention, and ongoing professional development of highly qualified teachers and administrators. The district is currently facing the fact that 25% of the teachers and 40% of the administrators in the pubic schools are not fully certified. The recruitment and professional development system will be of great value in helping the district improve the quality of its staff in both public and charter schools. The recruitment and professional development system assists in recruitment, expedites the contractual process, tracks certifications, and monitors professional development activity.

1.3 Vision of Integrated Technology

Technology is a necessary and integral part of the DCPS strategic plan and the educational environment that the district will have in 2010. The objectives and strategies of the declaration of education cannot be accomplished without the use of instructional improvement and monitoring systems. The following are the key components of how technology will be integrated into DCPS:

- Students and teachers will have access to technology in all public schools with the use of labs and a computer:student ratio of 1:4. Technology use will be recommended to the chartering authorities for charter schools. This technology will be refreshed on a regular basis. This will enable students to have sufficient access to network delivered instruction.
- A wide variety of technologies, including PCs, computer labs, portable technologies, two way audio video and websites, will be utilized.
- The International Society for Technology in Education (ISTE) National Educational Technology Standards (NETS) will be required for both students and teachers in the public schools and will be a suggested component to the chartering authorities.
- Technology programs will be created in many secondary schools in areas such as graphics and computer programming, as well as specialized, technology-based high school and vocational programs.
- A Web-based instructional process system that includes standards-based, high quality instructional resources, formative assessment, and data-driven decision-making will be utilized in the public schools and available to charter schools.
- A professional development system that plans, delivers, and monitors professional development will be available by all staff. The system will be presented to both public and charter schools but will be focused primarily on assisting DCPS in addressing the requirement of NCLB and improving the quality of teaching. Professional development targeted at demonstrating technology competency will be required of all teachers in the DCPS public schools and suggested for teachers in the charter schools.
- A Web-based system will assist parents in communicating with the school and to monitoring their children's progress
- High quality instructional resources will be used over networks in the instruction of core subjects.
- A standards-based report card will be developed and implemented.

The remainder of the report will be divided into the following sections:

- Instruction which discusses the use of technology for instruction
- Staff development which addresses how staff are trained on the use of technology and how to utilize technology to improve instruction
- Infrastructure which addresses the necessary networks and technology to support student learning and teaching
- Teacher Certification- This section addresses the systems for recruiting and managing information to assure high quality teaching
- Support Personnel which addresses the type of IT and instructional technology organization necessary for the IT group
- Resources for Data-Driven Decision Making which addresses the data warehouse and analytic tools necessary to assist in analytic decision-making.

2.0 Instruction

2.1 Current Environment

Currently, the overall performance of DCPS public schools is in need of improvement. While there are fifty-nine (59) schools that are currently proficient on the No Child Left Behind (NCLB) assessment for annual yearly progress (AYP), there are eighty-eight (88) schools which are not in full compliance with their AYP goals and need some level of assistance and intervention. For example, comparing the results in reading and math to the National Assessment of Educational Progress (NAEP), only ten percent of third grade students are performing at a proficient level in reading and seven percent are performing at a satisfactory level in math.

Although there has been a large technology investment in the DCPS public schools and there is a ratio of one computer for every four students (1:4) and internet access in all schools; authority over the use of technology for instruction like authority over curriculum, until recently has been at the site-based. The site-based discretion has created a wide range of technology use. There are a few exceptional examples of charter and public schools which are utilizing integrated learning systems, benchmark assessments, instructional management systems, and Web-based resources to support instruction. There are a few schools, some of which are specialized technology schools that utilize technology for specific purposes such as special education and ELL. However, the vast majority of the schools have limited use of instructional technology to support standards-based instruction and assessment, are not implementing the ISTE standards, and are not providing teachers with professional development on the integration of technology into instruction.

The recent statewide adoption of the Massachusetts standards and the formation of a five-year plan for continuous improvement have changed the approach to instructional improvement in the DC schools. The education department has established a statewide focus on the measurable improvement of standards based instruction in all schools both public and charter and for all students. The adoption of these standards highlights the following in the district's approach to teaching and learning:

- Standards and related curriculum will be centralized with the DCPS curriculum and accountability offices rather than individual school managing the instructional process
- Between 2005 and 2008, DCPS will develop and implement standards in nine subject areas. By 2006, standards will be implemented in the four core subjects.

- Each network printer has a dedicated switched 10/100 Mbps Switched Ethernet connection.
- The local-area and wide-area network designs allow for continued growth of network utilization and will allow easier scalability as the need arises.
- Digital streaming technology is being piloted. This service will be useful for providing information on the DCPS Website, and for making available supplemental digital video clips directly from within the online course site (WebCT).

4.2 Target Environment

Reliable, responsive, high-speed Wide Area Network (WAN) and Internet bandwidth for voice, video, and data is a critical component to the future of education. It will be a major resource required for delivery of educational content and resources to students, whether in the classroom, at home or in resource centers. In addition, new curriculum planning tools, formative assessment and diagnostic tools and teacher resources that the state must deploy will run over this high-speed infrastructure. Without a consistently reliable and responsive high-speed access, school systems will fall behind both instructionally and administratively. The recently deployed DC STARS, the state's student information management system, needs such a WAN to operate at its optimal capacity. Therefore a robust and fully managed statewide WAN is a critical component of the target environment for DCPS.

DCPS will work to develop and implement a statewide education network that will provide connectivity to the LEAs to include the following:

- managed services to ensure responsiveness, availability and reliability for voice, video and data over the WAN
- access that meets the unique bandwidth requirements of the student population for each school – special-needs schools (high poverty and/or high incidence of special education students) will have the bandwidth required by remediation and special education applications
- use of secure wireless infrastructure to provide mobility and flexibility and to supplement cable where such infrastructure is lacking.
- low Total Cost of Ownership (TCO) – Web-based deployment of instructional and administrative applications and resources.
- a full set of security and anti-virus components, including firewalls, intrusion detection, virus protection, and vulnerability assessment
- support for statewide instructional and administrative applications
- access to Internet 2

In addition to the WAN, considerable attention must also be paid to Local Area Network (LAN). Without a robust LAN, the WAN bandwidth can be underutilized and wasted. The DCPS target environment is to provide all schools with sufficient high-speed switched network connections to all classrooms, instructional areas, and administrative offices.

A third and very essential component to the DCPS target environment for infrastructure and connectivity is to treat all administrative and instructional computers, servers, and peripherals as integral components of the infrastructure, with clearly defined standards, replacement cycles, and equitable distribution strategies.

Finally, DCPS will Web-enable its instructional and administrative applications to ensure they can be accessed anytime/anywhere as instructional needs and business requirements may dictate. DCPS plans a massive and substantial revision of its Web-delivery infrastructure, with the goals of ensuring reliable delivery of current Web content as well as providing a stable, scalable standards-based platform from which to launch new capabilities to meet the evolving needs of the DCPS community of users.

The new Web infrastructure allows for ample capacity to handle both present and future needs. The public Web servers will be load-balanced across two high-capacity Web servers to further enhance reliability. All data resides on a two terabyte (2TB) Network-Attached Storage (NAS) device, providing centralized, fault-tolerant storage for all anticipated current and future needs.

4.3 Implementation of the Strategic Plan

Objectives:

DCPS has the following stated objectives for infrastructure and connectivity:

- Ensure that all schools and LEAs have reliable and responsive WAN and Internet access. Measures: % availability for each WAN segment; % utilization for each WAN segment.
- Provide connectivity to all classrooms, instructional spaces and administrative offices for all schools and administrative offices. Measure: % of schools at the defined baseline standard for connectivity.
- Web-enable all critical DCPS instructional and administrative applications to provide anywhere anytime access to critical DCPS information and resources. Measure: % of DCPS applications not fully Web-enabled.
- Ensure proper security, filtering, and recovery for all DC schools. Measure: number of findings from security audit that are addressed within 9 months of the audit.

- Ensure an equitable distribution of infrastructure (network connections, computers, servers, and peripherals) based on a set of baseline standards for these resources. Measure: % of schools at the defined baseline standard for computers and peripherals.

The following strategies will be used to implement the above objectives:

- Provide dedicated WAN connections, managed network services, and quality of service standards for voice, video, and data for all DSPS schools and LEAs/charter schools.
- Establish bandwidth, response, and availability criteria for each school and monitor the WAN services for compliance.
- Provide incident tracking, change control and response times in a negotiated SLA between DCPS and the WAN service provider.
- Conduct an inventory of the LAN capability for each school. Identify schools that do not meet the defined baseline standards for network connectivity (see below). Allocate available dollars to schools in priority order, with highest priority going to those schools that fall the furthest below standard.

Elementary School LAN Standards:

- switched to the desktop with a minimum combination of fiber to the wiring closet and CAT 5 or CAT 6 cabling to the classroom
- six data drops in each classroom (or potential to extend to six with a mini-switch or wireless).
  - thirty-five drops in the computer lab.
  - twenty-five drops in media center.
  - two drops in each administrative office.
- school-wide video cabling system with closed circuit console distribution and either three-Channel or full spectrum signal.

Middle School Data LAN Standards:

- switched to the desktop with a minimum combination of fiber to the wiring closet and CAT 5 or CAT 6 cabling to the classroom
- six data drops in each classroom (or potential to extend to 6 with a mini-switch or wireless).
- thirty-five drops in each computer lab.
- thirty-five drops in media center.
- two drops in each administrative area.
- school-wide video cabling system with closed circuit console distribution and either three-Channel or full spectrum signal.

High School LAN Standards:

- switched to the desktop with a minimum combination of fiber to the wiring closet and CAT 5 or CAT 6 cabling to the classroom
- six data drops in each classroom (or potential to extend to 6 with a mini-switch or wireless).
- thirty-five drops in each computer lab.
- forty drops in media center.
- two drops in each administrative area.
- school-wide video cabling system with closed circuit console distribution and either three-channel or full spectrum signal.

Need Policies

- Establish a Web-delivery infrastructure, with the goal of ensuring reliable delivery of instructional and administrative resources through a Web-based interface. Provide public Web servers, load-balanced across high-capacity Web servers to further enhance reliability.
- Provide three-tier architecture of Sun Web servers, Sun application servers, and Windows-based SQL database servers, including dedicated production servers and development environment to supporting the Web-architecture. These resources allow a great deal of flexibility and capacity for developers and end users, as well as providing a secure development and deployment environment.
- Establish policies and guidelines and conduct an audit for data security, acceptable use, and filtering.
- Place network security devices and current filtering and virus protection devices/software at the top of the purchasing priority list for schools/LEAs.
- Develop a disaster recovery plan for DCPS.
- Conduct an inventory of the computers and peripherals for each school. Identify schools that do not meet the defined baseline standards for computers and peripherals (see below). Allocate available dollars to schools in priority order, with highest priority going to those schools that fall the furthest below standard.

Standards

The following resources are required for elementary schools, middle schools, and high schools.

Elementary Schools

- Instructional Computers (classrooms, computer lab, laptop cart, media center):
  - 5:1 student-to-current computer ratio.
  - Printers accessible to all computers.
  - 1 fully cabled computer lab.
- Administrative Computers (administrators, office staff, counselors, cafeteria, etc.):
  - 1 to 1 administrator-to-computer ratio (6 computers is the average).
  - 1 printer for every 4 computers.

Middle Schools

- Instructional Computers (classrooms, computer labs, laptop cart, media center, CTE):
  - 5:1 student-to-current computer ratio.
  - Printers accessible to all computers.
  - 2 fully cabled computer labs or 1 fully cabled computer lab and 1 laptop cart.
  - Smaller middle schools might have only 1 lab.
  - CTE fully cabled computer labs.
- Administrative Computers (administrators, office staff, counselors, cafeteria, etc.):
  - 1:1 administrator-to-computer ratio (16 computers is the average).
  - 1 printer for every 4 computers.

High Schools

- Instructional Computers (classrooms, computer labs, laptop cart, media center, CTE):
  - 5:1 student-to-current computer ratio.
  - Printers accessible to all computers.
  - 2 fully cabled computer labs or 1 fully cabled computer lab and 1 laptop cart.
  - CTE fully cabled computer labs.
- Administrative Computers (administrators, office staff, counselors, cafeteria, etc.):
  - 1:1 administrator-to-computer ratio (20 computers is the average).
  - 1 printer for every 4 computers.

5.0 Technology Support Organization

5.1 Current Environment

Technology Support should follow the old adage of "form follows function." Effective use of technology depends on the existence of a support organization that assures the effective usage of technology and instructional applications to support the management of teaching and learning at all levels of the organization. The current IT organizations were designed prior to the establishment of the current instructional improvement efforts and are not adequate to the task of implementing the instructional improvement agenda throughout the DCPS LEAs. There is need to change the form of the organization to address its new functions.

In the last few years the DCPS technology organization has made considerable progress in developing implementing enterprise management systems such as student information system, and in standardizing and improving the network infrastructure in schools. The technology organizations of the DCPS and the city of Washington have been begun to collaborate on the development and implementation of common management systems and the utilization of E-rate funding. These collaborative efforts are in their early stages.

There has been considerable progress in the development of common management systems. However, the current technology support organization is focused on the DCPS public schools rather than the SEA functions of DCPS. Current technology support reflects the site-based organizational mission and structure of the DCPS public schools prior to the adoption of its challenging instructional agenda. Current technology support in DCPS can be characterized as follows:

- **There is very limited support for instructional technology.** There is an extremely small organization in the department of curriculum and instruction, which supports the division of curriculum and instruction in the development of technology policies for instruction. The small size of the staff has made it difficult to provide sufficient support in the implementation of technology standards and the selection and utilization of applications.
- **Each school determines its own instructional technology initiatives.** There is great variability in the area of instructional support with each school determining its own support personnel and range of applications. Although some schools have robust technology support groups, most schools have very limited technology support and are unsatisfied with the level of technology support they are receiving for their infrastructure

- **There is no vertical technology support organization targeted at the school divisions or the charter schools.** The divisional superintendents lack the technology support needed for the oversight and support of schools. Although some charter schools have very effective technology support for their instructional and management, they are not receiving support to address required data collections functions for USDOE.

5.2 Target Environment

In 2009, vertically- and horizontally- coordinated technology support organizations will be structured to accomplish:

- The implementation of DCPS instructional improvement agenda in all of its LEAs
- The use of data to support the management of an effective system of schools and to address federal reporting requirement
- The development and support of effective technology infrastructure and management systems.

Two well-coordinated technology organizations will support all of the DCPS LEAs:

- The DCPS IT organization will be responsible for the implementation and support of all infrastructure and management systems and will report to the chief operating officer
- The DCPS instructional technology organizations will be focused on the use of applications and staff development to address standards-based instructional improvement efforts.

The remainder of this section will address the technology support needed for instructional improvement efforts in all of DCPSA LEAs. This section is focused on the instructional technology organization rather than the IT management. The remainder of this section will be divided in to two sections:

- The technology support organization needed to address accountability and instructional improvement.
- The functional roles to be played by the Central office, Division or Charter authority, and the school level.

The Instructional Technology Support Group

Insert Organization Chart

The Instructional Technology Support organization will provide the support necessary for the implementation of an instructional improvement system.

The instructional technology support organization will be headed by an Executive director of instructional technology who will report to the Chief Academic Officer and have a dotted line relationship with the director of accountability and the Chief Information Officer. The role of the Executive Director of Instructional technology is to oversee all of those activities necessary for the effective implementation of those systems that improve the delivery of instruction, the quality of teaching and data-driven decision-making.

There will be four groups each headed by a director that report to the director of instructional Technology:

- **The Instructional process system group** will be responsible for the collection of best practice materials, the development and ongoing management of all components of the instructional process system, the development and publishing of best practice resources and materials in each of the content areas.
- **The data-driven decision making and analysis group** will be responsible for providing analysis and support to the divisional super intents, principals , the director of accountability and the chief academic officer in providing the necessary support in analyzing assessment and performance data. This group will act as staff to the division superintendents in managing the operations of the divisional superintendent's information system. This group will also be responsible for ensuring that high quality data is collected in the field.
- **The professional development group** will be responsible for planning and delivering all technology courses for teachers and principals and defining technology competencies. This group will also be responsible for the central help desk and mentoring related to the use of the instructional process systems.
- **The charter school liaison and support group** will be responsible for providing support to all other LEAs with DCPS on the training and use of assessment and student information systems. This group will provide support to all of the other LEAs in the development of their technology plans.

The various instructional technology subgroups will have the following roles and functions:

- **The Instructional Process System Group** is a central group that will work closely with curriculum and be comprised of three roles. Content experts for each subject area will develop and provide resources linked to standards in each content area and will maintain best practice and model unit plan sites. An assessment expert will assist the accountability office and schools in the implementation and use of all Web-based assessments including formative and high stakes assessments and specialized assessments such as reading and writing. A Webmaster will be responsible for the ongoing management of the instructional process system.
- **The Analysis Group** will be comprised of data analysts who will be assigned to each division superintendent and the director of accountability. Their role will be to provide analytic support to the divisional superintendents, directors of the charter authorities, senior decision makers, and principals on the ongoing progress of the districts. They will also be available to principals. The majority of the analyses will work in the divisional offices and provide support in the field.
- **The Professional Development Group** will work in headquarters and in the divisional superintendents' offices. A small number will be assigned to each division and superintendent and chartering group, to provide support to the field. They will also have a centralized group responsible for competency training, and managing the help desk.
- **The Charter School Liaison Support Group** will work with the two charter organizations. They will act as liaison with the three groups above and provide support to the charter schools in developing technology plans, and utilizing the student information, assessment, and analytic systems which are available to the charter schools.

Functional Roles by Level of the Organization

There are defined functions for technology support at each level of the school system.

- **SEA role:** The role of the SEA and the DCPS LEA is to:
  - provide centralized leadership and management of the instructional process system
  - oversee the procurement and implementation of network infrastructure and standards
  - design and develop technology competencies
  - procure and maintain all school system data

- **Maintain a central customer call center.** The Customer Care Call Center is focused on being the single point-of-contact for all technology-related issues. The Customer Care Call Center provides phone, e-mail, fax, walk-up and limited on-site software support to all DCPS schools, centers and administrative offices. Once a call or request is received at the Customer Care Call Center, the staff members resolve, refer, track, or escalate that request in accordance with agreed upon business rules and service level agreements. If the call/request is not resolved on first contact, then the Customer Care Call Center will take "ownership," escalate and track the call until its completion.
- **The Divisional Superintendent's office role** and the chartering authority are to provide support to local schools in their jurisdiction. Their main support roles are to:
  - provide a team of instructional specialists and staff developers who will provide staff development and support to school staff in the use of instructional process system to assure ongoing standards-based improvement and student information systems
  - provide Instructional Technology Support Specialists to act as second tier software and network support: Information Technology (IT) Call Center to ensure proper escalation and resolution of that problem. The ITSS provides second-tier on-site software support by rotating through their assigned grouping of schools on a regular basis. Each school and site determines the priority of what is done by the ITSS at each site. The SBTS, or the school/site technology point-of contact, works with the technology support specialist in determining this list. Some examples of the ITSS functions are: troubleshoot desktop applications, assist SBTC with installation of software upgrades, and install and configure networked peripherals in the school. The life of an ITSS can truly be characterized as "front line" technology support for all DCPS schools and when an ITSS encounters a problem that requires additional resources or the involvement of other FCPS support partners, the ITSS works with the IT department to resolve the problem.
  - provide an analyst to manage the use of the divisional information support system. The divisional and charter school information system will provide ongoing information on the operation of schools which will allow the superintendent and the charter school authorities to provide needed support and oversight to schools.
  - provide field Services Technicians Field services technicians focus on hardware support. A team of them supports the schools within a division or charter school group. They maintain and repair all information technology hardware. This includes computers, networks, telecommunications, and telephony devices.

- **School-Level Roles:** The school is the place where technology needs to function instructionally and technically on a daily basis. The function of the school is to assure that all data collection, student information, and instructional process systems are used on an ongoing basis as the central tools for management, instructional improvement, parent communication, and data collection.
- **School-Based Technology Coordinator (SBTC)** – is focused on providing technology training and integration support. Every school will have either a .5 or 1.0 full-time equivalent (FTE) SBTS position. This position is responsible for technology training at the local school to facilitate the implementation of instructional technology including the instructional process system and the student information system. They also serve as the technology point-of-contact and as liaison between school staff and division wide technology resources for the installation, maintenance, and upgrade of technology hardware and software. Additionally, the SBTC is responsible for performing Level 1 (basic troubleshooting) support, as well as, determining the priority of the technology tasks requiring the services of the ITSS (see below) and/or other technology support partners.

5.3 Implementation of the Strategic Plan

Objectives

- To provide accessible technology support at all levels of the organization in order to assure the effective implementation of standards-based improvement.
- Provide a centralized support for the development, implementation, and ongoing maintenance of technology, staff development and instructional systems
- To establish roles to provide instructional technology support at the school, division, charter, and curriculum office level within DCPS

Strategies

- Establish an instructional technology organization under the chief Academic Officer to manage the use of instructional process systems, data-driven decision making that will assure the implementation of the strategic instructional agenda in all of the LEAs.
- Providing support to the charter schools to accomplish their instructional and management agenda and supporting them in meeting federal requirements.
- Identify support roles (e.g., specialist, help desk specialist, field services technician).

- Establish technology support organization to support the specific mission and function of each level of the SEA organization such as the charter schools, divisional organization, curriculum group, and management office.
- Establish technology competencies for each classification
- Establish a certification exam that can be used for licensed staff.
- Modify the certification requirements to include technical competency.
- Establish a professional development plan and schedule for each support personnel in the DCPS. Require completion of the plan as a condition of employment.

Needed Policies

- A policy to establish a formal instructional technology support organization
- A policy to establish common management systems for all LEAs that assure they will be able to address all federal requirements
- A policy to establish the needed new support roles

6.0 Resources for Data-Driven Decisions

6.1 Current Environment

DCPS has a number of systems either in place as legacy systems or under development/deployment as new systems that support teaching and learning either directly as instructional systems with curriculum content and assessment items or indirectly as decision support and data collection systems that can inform instruction and assess program effectiveness. DCPS is a member of the Decision Support Architecture Consortium (DSAC). Through this Consortium, a study was recently conducted of the systems and processes that DCPS has that can provide data to inform instruction and/or assess instructional programs. Because the current environment is explained in the context of the DSAC architecture, a brief explanation of this architecture is necessary.

The DSAC architecture for state level decision support for improving and sustaining academic performance is comprised of the following key elements:

- **Core Processes** whose definition, support, and proper execution are critical to an effective management system that is geared to improving instruction.
- **An Applications Architecture** of databases and technology tools that comprise the information systems necessary for instructional improvement efforts.

There are six core processes that are necessary to assure individual student improvement in the District of Columbia. As described below, these core processes represent functions that have to be managed from the state, through the districts to the school to the sclassrooms of DCPS.. Each of the processes has related information systems and database applications associated with them. The six core processes are:

- **Set Academic Standards and Curriculum** – This process identifies, defines, refines, communicates, and monitors the State's standards for learning by subject and grade. In some states this includes the naming of courses and the establishment of course requirements. This process may also include statewide textbook selection and the selection of instructional management tools for the LEAs to use.
- **Administer Performance Based and Standardized Assessments** – This is a process to define the performance criteria for students against state standards as well as a method for assessing and reporting each student's progress relative to these criteria.

- **Certify Educators** – This is a process to document teacher and educational administrator competency levels as related to the state standards and to certify teachers who have achieved the proper level of competency.
- **Conduct Data-Driven Analysis and Interventions and Manage Accountability Systems** – This is the process for collecting and analyzing assessment data to identify and conduct interventions at the school, classroom, and student level. This process also includes defining expected performance levels for districts, schools, and teachers, and holding them accountable for achieving these levels, with appropriate rewards for success.
- **Distribute Grants/Aid and Ensure Compliance** – This is the process for collecting data and distributing funding to school districts either as direct state aid or through state or federal grants. Grants may be either competitive or based on entitlement formulas. This process also ensures compliance with federal and state requirements (such as Title I compliance).
- **Collect and Report Data** – This is the process for collecting student, educator, and program/organization data from school districts relative to all aspect of educational program information.

To properly support and accomplish the core processes, there needs to be a set of twelve system components, at a minimum, to support NCLB requirements. These systems are as follows:

- **Enterprise Directory + Security Portal:** A set of synchronized LDAP and relational databases with distributed administration tools that maintain core information, authentication, and authorization data for school organizations and those educators/administrators that require personalized access to state on-line applications.
- **Student ID + Record Collection (SPED, Voc, etc.):** A system to register each student with the state, assign and maintain a unique ID, and collect individual student records at least several times a year.
- **Educator Certification Management:** A system to register and license educators and maintain licensure information through a teacher's career.
- **Staff Record Collection and Highly Qualified Determination**: a system to collect individual records linked to the state certification system for both licensed and unlicensed educators.
- **State Curriculum Management (learning standards, courses):** A system to publish state learning standards, course definitions, and recommended/restricted content (textbooks).
- **State Assessment Results Management:** Each state needs a system to accept individual and aggregated results from their assessment vendor to merge into decision support tools to support accountability determinations.

- **Grant and Program Data Collection:** States require applications to collect information from school and district personnel, above, and beyond the individual student and staff records collected. Workflow can be enabled to utilize the Web to improve efficiency.
- **End of Year Finance Data Collection:** States need to collect financial data from LEAs, school buildings, and programs each year.
- **Safety and Discipline Information Data Collection:** Districts must report every incidence of violence through the state to the federal government. Since an incident is not a characteristic of the student, a separate system needs to track each incident as it relates to above identified students.
- **Facilities and Technology Plan Data Collection:** All school districts must report certain technology related data to the state. Many states require districts to report additional information related to facilities.
- **Data Warehouse:** All of the above information must be stored in granular and structured format in an enterprise data warehouse.
- **Decision Support Tools:** All of the data in the data warehouse must be made accessible to authenticated and unauthenticated users. Initially usage may be restricted to highly structured queries that fulfill reporting requirements. Eventually, state decision support environments will integrate with district environments to provide educators, students, and parents with broad access to data resources that will support student learning.

For the purpose of this discussion, systems recommended by the DSAC architecture fall into two actionable categories:

- **core applications** (meaning they should be implemented first and are the building blocks of other applications),
- **service applications**, which use core applications as part of the building blocks and deliver decision support functionality to district, school, or DCPS personnel.

Following are the major applications recommended by the DSAC architecture for a state agency and the DCPS status relative to the application.

DSAC System Description	DCPS Status Relative to The System
Enterprise Directory – The directory is a core application. Applications use this to allow user authentication, single sign-on, security authorization, generation of distribution lists, etc.	• The DCPS uses Active Directory – they are migrating users and hardware to this system. Currently it does not contain all teachers – about 1500 are on this system. Plans are to use Plumtree as the portal.

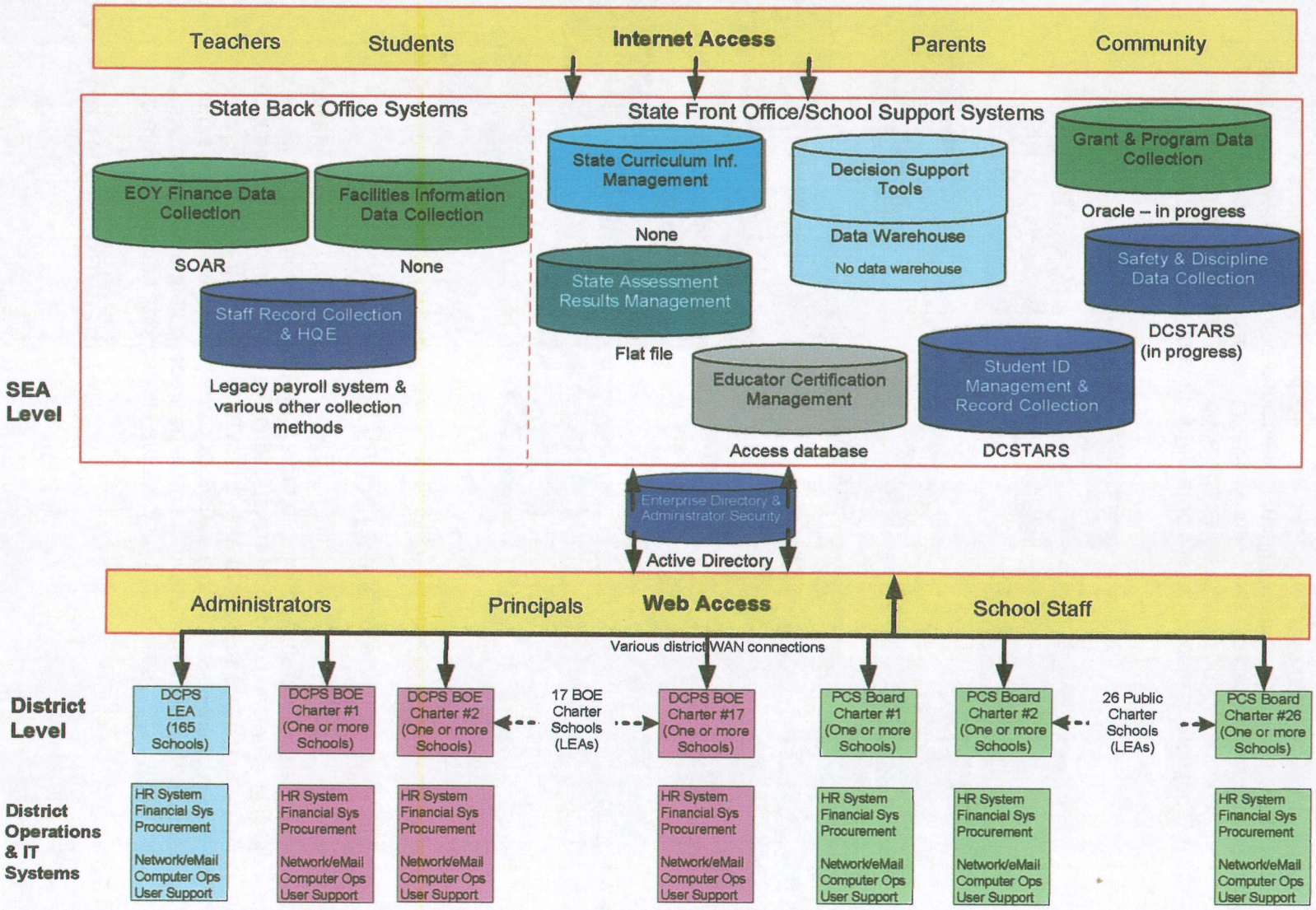
DSAC System Description	DCPS Status Relative to The System
Unique Student ID and Record Collection – This is another core application. The demographics data, attendance data, and schedule information feed a number of other important systems.	• DCPS has selected AAL's eSIS product for tracking student information and is well along in implementing the product. The full implementation of this system across the entire SEA, together with the unique student identifier, has the potential to significantly improve data collection and reporting for DCPS. • There are forty-four districts in DCPS (counting charter schools as districts) – every district comes to DCPS for an ID. Currently this is in a legacy system that is transitioning to eSIS (DC STARS) this fall. It is hard to encourage charter schools to acquire numbers – cannot issue block of numbers to charters. Looks at name, DOB, mother's name, and SSN to ensure uniqueness.
Staff Record Collection Information – This is a service application to collect individual records linked to the state certification system for both licensed and unlicensed educators. Either a flat file transfer to a relational database system, a SIF interface, or a Web-enabled data entry capability for districts that do not already have this information in electronic format should be provided.	• Staff information is collected now through a legacy payroll system as well as several other sources. It is a manual process that is largely paper-based that does not provide complete information. DCPS collects licensure information into DC STARS.
Safety and Discipline Information Collection	• Over the long-term DCPS will store this data in DC STARS, which has a discipline module and a safety module and a medical immunization module. Currently discipline is in several different systems.
Facilities Data Management – This is a service application. It should contain key information regarding school and district physical facilities. Many states require districts to report information related to facilities. Either a flat file transfer to a relational database system, a SIF interface, or a Web-enabled data entry capability for districts that do not already have this information in electronic format should be provided.	• Facilities data is kept by the facilities staff. They have competitive grant that they will use to build a system to track facilities for charter schools.

DSAC System Description	DCPS Status Relative to The System
Technology Plan is a service application. It should contain key information regarding technology infrastructure at the districts and schools that allow the DCPS to determine whether appropriate infrastructure exists for deployment of certain systems (such as online testing). Either a flat file transfer to an asset management system, a SIF interface, or a Web-enabled data entry capability for districts that do not already have this information in electronic format should be provided.	• No system is currently available to track the inventory.
Data Warehouse – This is a core application that draws data from operational databases to retain a snapshot of data at pre-determined intervals for archival purposes. It should contain all student demographic and assessment data, financial data, grants information, school and teacher information in separate but linked relational tables. The purpose of the data warehouse is analytics and reporting, not tracking operational or transactional data.	• eScholar is the DCPS strategy for a data warehouse, but DCPS does not have board approval yet. DCPS needs a data governance process in place to support the implementation of this system.
Decision Support Tools – This is a service application that is provided to the SEA, LEA, and school-level administrator/teacher for the purpose of easily extracting data from systems to allow them to make data-driven decisions on a wide range of areas.	• There are no real decision support tools – some Web-based data is published.
Educator Teacher Certification Management – The certification database is a service application. The system should be Web-based with a relational database and should include the following functions: • Online query by teachers to determine status on re-certifications • Online query by applications to determine certification status	• The current database for teacher licensure is written in Access and is resident on a department server. • Data is not retained in a data warehouse nor is it combined with student data for decision support.

DSAC System Description	DCPS Status Relative to The System
(Cont'd) • Online updates by district staff to keep teacher certification information current • Pro-active flagging of certification and re-certification issues and deadlines to districts and teachers • Tracking of professional development hours and course content • Matching of certifications to actual courses taught • Workflow processing of the certification process from initial entry of a job applicant to the final issuance of a certificate	• See above
Assessment Database – this is a core application to accept individual student and aggregated results from the assessment vendor to merge into decision support tools to support accountability determinations.	• Assessment results are maintained in a flat file (Excel); DCPS have five years worth of assessment data. • Assessments will eventually be in DC STARS and DC STARS Lite (for LEAs that do not use DC STARS).
Learning Standards Database – this is a core application to publish State learning standards, course definitions, and recommended/restricted content (textbooks). This should be a relational data structure with the capability to easily extract (XML) or link standards definitions with other systems.	• Currently, there is no curriculum and standards database. This should be a key component of the instructional portal and developed over the coming year.
Instructional Management System (IMS) – This is a services application that links to the Standards Database and defines the curriculum scope, content (or links to content and pointers to hardcopy material), sequence, schedule and assessment criteria. It should be online, Web-based and built upon a relational system.	• There is no instructional management system for either the public or charter schools in DCPS. Each school is responsible for its own curriculum.

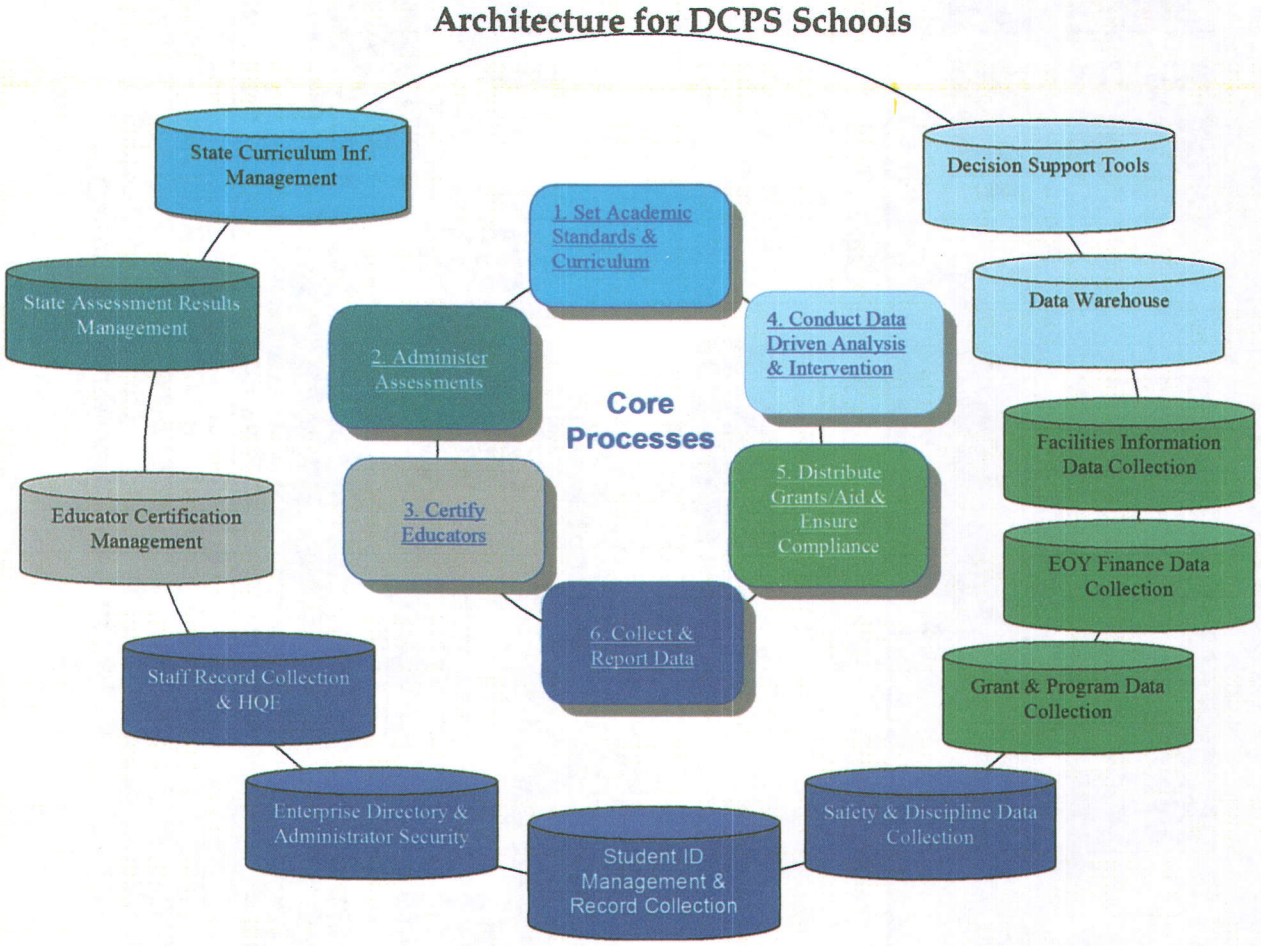
The diagram that follows shows the current DC systems that are in place today that can provide data that can be used to inform instruction and assess instructional programs.

Current DC State DSAC Systems



6.2 Target Environment

The aforementioned applications architecture (databases, applications, and infrastructure) and their associated enabling processes may be integrated into a comprehensive view of hard and soft system elements within each of the Core Processes. The figure below shows the core processes and the interplay of the application architecture with the supporting enabling architecture. This diagram is a logical depiction of the DCPS target architecture for data-driven decision-making.



By 2009, DCPS will maintain an integrated system of data to monitor system performance and support data-driven decision making on instructional programming and allocations. DCPS will have easy to use data analysis tools that will allow teachers and principals to modify the instructional process for individual students throughout the year. DCPS will also have a system for test delivery and storage. This system will enable DCPS to keep a database of highly reliable test items and to maintain ongoing assessment information. This information will be used to improve instruction and to provide long-term

assessment data and trends for all public and private schools. The system helps assure that the quality of data is reliable and that assessment data is used on an ongoing basis to improve instruction. DCPS will also have a robust data warehouse and data analysis tool for use by teachers and administrators to inform instruction and assess the effectiveness of instructional programs and material.

DCPS will have a statewide security and access portal to allow easy access and single sign-on with authentication to the state-supported systems provided to teachers and administrators.

6.3 Implementation of the Strategic Plan

The systems work for DCPS to implement the Target Environment is defined below as a set of projects. Each project will be assigned a sponsor from the executive leadership of DCPS and an accompanying project manager who has singular responsibility for project oversight, execution, and project team supervision and leadership. Each project will be allocated a project team, a project budget, and a clearly defined scope of work with accompanying milestone schedule. In addition, a Project Management Office (PMO) function will be implemented to continually assess the status and resolve issues for all key projects to ensure consistency of process and delivery across these large, complex, overlapping, and interconnected projects.

Goals and Strategies

- To assure that reliable data exists and is maintained for data-driven decision making to improve instruction in all of DCPS LEAs
- To create a data architecture that will assure that all data is integrated and usable
- To establish a support and analysis group to assist in the use of data for effective decision making

Strategies

- Pursue a series of projects to implement a data and applications architecture that supports data-driven decisions. These projects are outlined in the section that follows.

Needed Policies

The following are policies that are needed to support the effective use of data in DCPS:

- There needs to be a manager responsible for maintaining the quality of assessment, student, personnel, and financial data in all of the LEAs

- There needs to be an analyst group established to provide the divisional associate superintendents,
- There need to be data quality standards established for all LEAS in DCPS
- All organizations within the SEA including public schools, charter schools, divisions, need to be required to provide analysis for all allocation requests and annual instructional plan

7.0 Communication and Collaboration

7.1 Current Environment

With the exception of very clear communication about DC Stars, the new student information system, there has been limited communication among the various constituencies and LEAs, particularly between the SEA and the charter schools about the 1997 technology plan and the use of technology to support instructional improvement and accountability. The reasons for the limited communication and collaboration are:

- Technology was seen as a prerogative of DCPS public schools and individual charter schools.
- The main technology emphasis has been on the development of infrastructure for the DCPS pubic schools and enterprise wide management systems for DCPS public schools and the city IT group.
- The "Declaration of Education" is a recent document and the need for the integration of technology to effect its success has not yet been communicated to either the DCPS LEA or the charter schools.

There are five major groups to whom the role and importance of technology needs to be communicated. The collaboration of these groups with each other is necessary to assure the effective use of technology for instructional improvement:

- The teaching staffs of the LEA and charter schools (they are the central users of the technology).
- The central offices for accountability, instruction, and operations (manage the use of technology)
- The school and division administrations (need to manage the integration of technology and usage of technology into the instructional process and the collection of data for accountability)
- The various SEA and LEA policy funding and oversight bodies (e.g., board of education, charter authorities and City of Washington) who establish requirements and policies for accountability such as the state board of Education, DCPS LEA board of education, the DC city government.
- Parents of students who will be benefiting from the integration and use of technology to support instructional improvement efforts.

There has not been:

- defined campaign to communicate the role and function of technology to each of these groups

- program to establish collaboration among the groups to assure that accountability requirements are met and technology is implemented as a necessary tool for instructional improvement efforts.
- ongoing input from each group and the establishment of service level agreements to enable the effective usage of instructional technology

7.2 Target Environment

In 2009 an organized communication mechanisms on the use of technology to improve instruction in both pubic and charter schools will have been institutionalized and mechanisms for ongoing collaboration will be in place:

The main components of the communication effort will be:

- A communication campaign outlining the components of the five-year technology plan, and the critical importance of technology to the five major technology constituencies. This campaign will be established by the SEA and consist of publication of documents and public meeting with all of the constituency groups.
- The establishment of a joint technology steering committee comprised of representatives of all LEAs, the DCPS School Board, and charter authorities, who will provide the CIO and the Chief Academic officer with advice and input on a quarterly basis. This group will give input into proposed projects and provide comment on the effectiveness of technology in enabling and strengthening the standards effort. The steering committee will be of a workable size and will provide input to the CIO and the Chief accountability officer in establishing programs, establishing evaluation criteria, and developing budgets.
- The publication of an annual plan and quarterly reports on the use of technology to support instruction to be published jointly by the CIO and the Chief Academic Officer. These documents will be available on the district website and in hard copy. They will document best practices and show progress on the annual technology plans.
- The establishment of annual service level agreements with representative bodies of each of the five constituent groups (e.g., parents, divisions, charter schools, public schools, and administrators) on the services needed to utilize technology. The service level agreements will create an opportunity for the key users of technology to negotiate expectations and services with the providers of technology and instructional technology services.
- An annual critical friend review will be held to discuss recommendations by a panel of private industry and advocacy groups on the use of technology to support instruction and accountability. There are many public minded experts in government, industry and non-profit groups who can impartially act as a third party to evaluate the implementation of technology use and make recommendations on improving the effort to utilize technology to impact accountability and instructional improvement.

7.3 Implementation of the Strategic Plan

The DCPS SEA must do an outstanding job of marketing instructional technology programs to its internal constituencies and to the public if technology is to become an integral component of the program to improve educational results in the various DCPS LEAs.

Without internal support, technology initiatives are difficult to begin and impossible to implement. The effort to integrate technology into the standards-based improvement effort is a new concept. For this effort to be effective there needs to be ongoing communication among the constituencies and between the constituencies and the SEA during the implementation effort to ensure that the necessary midcourse corrections in the program are made for the integration of technology to be effective.

The goals of the communication and collaboration program are:

- to market the concept that the integration of instructional technology is necessary to accomplish the goals of the Declaration of Education
- to establish ongoing communication mechanisms between the CIO, chief academic officer and the five prime constituencies to ensure the effective implementation of the instructional technology program
- to engage the parental and private sector in the effective implementation of the program.
- to provide web and print based communication on the use of technology for instructional improvement.

The activities necessary to accomplish the goals are:

- The establishment of a technology steering committee comprised of representatives of charter schools, divisions, parent organizations, schools, teachers and administrators who will meet quarterly to give input on the implementation of the plan
- The establishment of steering committees for each of the constituent groups on the integration and use of instructional technology.
- The publication of an annual plan by the CIO and the Chief Academic Officer describing the use of instructional technology
- The publication of a quarterly newsletter on best practices and progress on the plan. This will appear on the web and in print
- The establishment of service level agreement with each of the constituency groups on the levels of support and accountability on their part, needed to accomplish technology integration
- The establishment of an expert group comprised of government, private sector, and parents to conduct an annual critical friend review and recommendations of the instructional technology program

Needed Policies

- The SEA board of education needs to establish a steering committee and an advisory boards.
- The SEA has to establish an annual process of approving the service level agreements with the various constituencies
- The SEA board of education and the various LEAs need to adopt a communications campaign

8.0 Evaluation

8.1 Current Environment

Except for tracking the usage of instructional media in the DCPS public schools, there has been little formal evaluation of instructional technology use, other than that required by Title I and other categorical fund usage. The following are the main reasons for the lack of evaluation practices:

- The use of technology has been decentralized to the school level and there have been no LEA or SEA-wide practices. There are a very wide variety of local practices.
- There have been no required use of instructional technology at the SEA or LEA level

The advent of the *Declaration of Education* radically increases the need for technology evaluation. The implementation of the ***Declaration of Education*** demands integration of technology into the centralized standards-based instructional improvement program if the program is to be effective. The use of instructional technology in an environment such as DCPS where it has previously been used needs to be a process, not in an event. The DCPS SEA has to develop an ongoing three-stage evaluation process to enable the effectiveness of technology in impacting instruction and student outcomes in all of its LEAs. The three stages of evaluation that DCPS has to consider are:

- ***Evaluation of Pilot Projects.*** All new technology programs such as assessment or the instructional process system will require pilots. The purpose of the pilots will be to determine what support .and technical implementation processes, and staff development are necessary to carry out a full-scale implementation.
- ***Ongoing Formative Evaluation.*** It is not possible to determine if the technology has had an impact on instructional outcomes unless it is implemented. The process of getting teachers, administrators, and students to change the way they teach and learn demands significant change. Currently there is a need to develop a three-year formative process that focuses only on the integration, management, and implementation of the new systems, related staff development, and technical functionality. The metric for formative evaluation should be usage of the technology. Only if it is used can it be determined if the technology is having an effect on instructional outcomes. The purpose of the formative evaluation will be to increase usage of the new instructional technologies. The process assumes that introductions of these systems will be gradual to assure that the possibilities of success will be maximized and the possibilities for resistance will be minimized.

- **Summative Evaluation**. At the end of three years, it will reasonable to determine if the combined use of instructional technology components such as the instructional process systems, staff development, technology competency implementations have had an impact on improvement in achievement. This can be determined by a set of comparative studies of schools, and LEAS where there are high and low rates of technology implementation. If there is a strong correlation between the use of technology for standards-based teaching and learning and an increase in scores and a high correlation between the low usage of technology and low achievement, it is reasonable to conclude that the technology has had a major impact on the achievement of better instructional improvement. The period of three years is chosen as we know from empirical studies that it takes that much time to assure effective implementation rates of technology environment in schools.

8.2 Target Environment

In 2009, the DCPS will have implemented an ongoing system of implementation required on the use of all instructional technology chosen to impact instructional results: The following will be the components of the evaluation process

- **Pilot projects** – All procurements of new systems (e.g., assessment and staff development practices) will require an initial pilot evaluation where lesson learned will be collected and a multi-year plan for implementation will be conducted. The results of the pilot evaluation will be decisions to move or not move forward with large scale implementation and to develop a multi year implementation plan with necessary technical, management, and staff development support
- **Formative Evaluation** – There will be a three year formative evaluation plan for each new system, management process and staff development process related to instructional improvement. This three-year process will establish quarterly performance benchmarks for the process. It is assumed that the usage in each school of new systems will be increased each year, with one third of a staff adopting a new system each year. This process will make the implementation doable and minimize resistance.

The evaluator and the related school and implementation teams will collect on going usage data meet quarterly to determine if the system or practice is being used. The aim of the formative evaluation will be to develop groups of critical users in each school and to increase usage of the various instructional technology components on an ongoing basis.

- **Summative evaluation** – At the end of three years there will be comparative studies done between high performing schools and low performing schools to determine there is a high correlation of improved outcomes and use of instructional technology for teaching and learning and management of instruction. It is assumed that it will take at least

three years to get high implementation of the instructional technology components. Until it is known that there is usage, it does not make sense to compare the outcomes on standards to use of technology.

Needed Policies

The following policies will be needed to support the use of the evaluation process described above:

- The SEA board of education needs to require the three stage process stated above
- 10% of funds for all instructional technology and related management processes need to be required for evaluation
- Technology evaluation groups who report to the director of accountability need to be established by each LEA and charter authority.

8.3 Implementation of the Strategic Plan

Goal: Effective and Efficient Operations, High Student Achievement

Objectives:

- Using a variety of evaluation/assessment tools that are provided by DCPS or developed by the LEA, District of Columbia educators will collect, aggregate, analyze, and report the impact of media and technology programs.
- DCPS, administrators, teachers, and support personnel will use technology to gather, compile, publish, and analyze performance data.
- DCPS, administrators, teachers, and support personnel will make sound decisions based on results of assessments.
- Complying with federal mandates, District of Columbia educators will collect, aggregate, analyze, and report the impact of educational technology programs on student achievement.

To meet these objectives, DCPS will:

- Identify goals of the District of Columbia State Educational Technology Plan.
- Collect, compile and publish the Annual Media and Technology Report based on the pilot, formative and summative evaluation data of instructional technology.
- Continue research in assessment and evaluation techniques.
- Communicate the results of evaluation to LEAs, DC State Board of Education, and US Department of Education.

- Monitor and report annual formative evaluation data and after 3 years report statewide achievement data as it relates to educational technology initiatives to the US Department of Education in accordance with mandates of No Child Left Behind/Enhancing Education Through Technology legislation.
- Provide data concerning media and technology to the DC General Assembly as requested.
- Provide tools and training for data collection and analysis

In order to meet the state objectives, LEAs should:

- Identify goals of district and school lever educational technology plans and continuously assess progress towards those goals.
- Collect baseline data at the start of every media and technology initiative.
- Use quantitative and qualitative methods of assessment.
- Perform multiple assessments whenever possible.
- Make mid- course corrections to instructional technology projects and/or technology plan as needed, based on the annual formative assessment.
- Consider alternate assessment forms and implement when appropriate.
- Involve teachers and administrators in evaluating criteria for formative assessment practices that satisfy local needs, align with state frameworks, and track student progress over time.

9.0 Projects, Master Schedule, and Budget

Projects and Implementation Plan

The table below identifies and briefly describes the projects that will be pursued to implement the resources and architecture for decision and teaching support. Some of these are already underway in some manner. For example, the data warehouse and certification efforts are ongoing initiatives.

Project No.	Project Name	Project Description
Project 1	Balanced Scorecard, Project Management and Oversight Process	This project implements a Balanced Scorecard, a project management process and project oversight committee for all major DCPS projects (technical and non-technical). The project provides training and tools for a best-practice implementation of time-tested project management methods. • Project management process and tools to include electronic templates for project charters, monthly status reports, change control forms, communication plans, issue tracking, and role clarification document • Roles, operating guidelines and team norms for a committee to oversee the full implementation of the projects • This project implements a Balanced Scorecard, a project management process and project oversight committee for all major DCPS projects (technical and non-technical). The project provides training and tools for a best-practice implementation of time-tested project management methods. • Project management process and tools to include electronic templates for project charters, monthly status reports, change control forms, communication plans, issue tracking, and role clarification document • Roles, operating guidelines and team norms for a committee to oversee the full implementation of the projects • One-day project manager training for the leadership and project managers within DCPS. • One-day project manager training for additional project managers within DCPS.

Project No.	Project Name	Project Description
Project 1 (cont'd)	Balanced Scorecard, Project Management and Oversight Process	• Facilitated PMOC (Project Management Oversight Committee) sessions with agendas, action items, issues logs, status reports from projects and change order management. • Facilitated project management process to assist project teams to develop project charters and complete status reports. • Assistance to project managers to assemble monthly status reports and PMOC presentations.
Project 2	Division Information System and Intervention Process	This project identifies the key measures e.g. curriculum progress, attendance, budgets, etc. that division superintendents should monitor as indicators of effective operation, school improvement and high performance. The system will provide exception reporting on key information to support timely management of instructional improvement.
Project 3	Assessment Delivery and Storage Engine	The assessment delivery and storage engine will allow the delivery of three types of assessment: • High quality items linked to standards that can be used by teachers in regular classroom tests. • Formative assessment that can be used to track student progress on standards several times throughout the year. • DC-CASS - the delivery of the annual CRT test to track annual student progress. The assessment delivery and storage system will greatly improve the quality and use of data to improve student performance.
Project 4	Instructional Management Portal	This project will provide a fully integrated instructional portal that will link standards, high quality curriculum resources, formative assessment data, and data analysis as an ongoing process. It will be a Web-based system that will support the implementation of the new standards. The project will facilitate the purchase and implementation of an instructional management system. The scope includes: • Identification of the requirements and specifications using a collaborative process that involves districts and schools. • RFP to select a hosting vendor. • Professional development for teachers.

Project No.	Project Name	Project Description
Project 5	IT Organization and Data Governance	This project will restructure DCPS organizational responsibilities to focus on information technology and assets. It also builds the data governance and data ownership for the DCPS. Deliverables of this project should include: • Chief Information Officer roles and responsibilities and reporting relationships. • Organizational model that defines roles and responsibilities. • Data management vision and strategy. • Data governance process (to include data policy committee of SEA/LEA management, data managers working group made up of the caretakers of the data, data management roles and responsibilities including job descriptions for data managers, business analysts and data stewards). • Data policies, to address data ownership, data quality, data collection, data storage, data publication / dissemination and the role of an enterprise data architecture. • Metadata management tool selection, acquisition, implementation, and training for internal staff. • Inventory of DCPS systems of record identifying ownership of data, data managers/stewards, as well as applications and tools used to read and manage the current data files. Associated data definitions for each element of those systems as an ongoing effort beginning with high priority, high use data collections. • Annual data management plan for each system of record - to include data collection and release, a data acquisition (collection) calendar and a master schedule of recurring annual data requests (data releases) that must be met by DCPS. • Temporary options for making data more accessible. • Data guidelines and procedures to include procedures for verification of data and data requests, procedures for requesting and providing data through a singe process and/or point of responsibility, procedures for tracking data requests, procedures for capturing and resolving data issues.

Project No.	Project Name	Project Description
Project 6	Data Warehouse	This project uses the data governance process to complete the data warehouse project. This project will also select a query tool. The deliverables from this effort will include: • Scope of a properly sized first phase of a data warehouse project, to include data elements and definitions. • This scope should also include a list of data users and the types of questions to be answered by the data. • Processes to deliver and maintain these services for the selected data elements for phase I of the data warehouse: – to enable data cleansing – to identify and resolve data inconsistencies – to provide access controls – to resolve timing issues – to reduce manual intervention – to allow for architected solutions – data integration – extraction, transformation, and load (ETL) routines – data affinity diagramming – data attribute definitions • Requirements and specifications for the first phase of a data warehouse, ETL tools, data cleansing tools, query, and Business Intelligence tools. • Enterprise-wide metadata directory to capture all of the data element definitions, attributes, valid values, and rules governing the data. • Development of the first phase of the data warehouse with contracted resources. • Technical plans and processes for the rollout of data warehousing and data mart services to the DCPS and the LEAs, including staffing operating cost, and security/data recovery models. • Training for the metadata directory, Business Intelligence tools, etc to all Phase I users (LEA and DOE).

Project No.	Project Name	Project Description
Project 6 (cont'd)	Data Warehouse	• Data modeling and standardization, including the move to the Student Interoperability Format (SIF) for data exchange. • Selection and procurement of new query, reporting, and analysis software. • Prioritized list (through focus groups and surveys) of what additional data should be placed in the data warehouse. Focus groups will be by subject area, including financial, human resource, accountability, purchasing, technology, curriculum/instruction, and LEAs. • Prioritized list of the major new reports that could be developed to take advantage of the additional data. • Logical and physical design of the data model for the additional tables and data elements in the data warehouse.
Project 7	eGrants System	This project implements a comprehensive, integrated grant management/fund tracking system that provides grant management, communication, tracking, and reporting. This effort will explore options for acquiring this system, to include systems that other DSAC members states are willing to share. The scope of the project includes the following: • Designate an overall process owner for grant management. • The process owner should establish a consistent process and guidelines for grant management, communication, tracking and reporting. • The process should define guidelines, methods, and tools (to include websites and distribution lists) for communicating grant opportunities. • The process should define the application process and approval/selection process. This should be aligned with the strategic plans of DCPS so that fund allocation supports the goals and objectives of the district.

Project No.	Project Name	Project Description
Project 7 (cont'd)	eGrants System	The project should develop an online, Web-based tracking and reporting system for reporting and monitoring grant compliance. The project team should review existing systems available through the DSAC from Missouri, Pennsylvania, and New Jersey. A system should be selected, modifications identified and prioritized, and a vendor selected to implement the modifications. • Professional development should be administered to all individuals that participate in the grants process. • The project should identify grant information that should be extracted periodically and placed in the data warehouse for long-term analysis for fund allocations on student performance. • An audit process should also be developed and regularly applied to ensure compliance.
Project 8	Online Professional Development System	This project selects and implements a system to automate the publication, sign-in, tracking of professional development, and monitoring of re-certification requirements. The scope includes: • Defining specifications for the system. • Preparing RFP or RFI. • Selecting vendor to host the system. • Training for teachers, district administrators, and DCPS staff.
Project 9	Teacher Certification System	This project implements an online teacher certification system for submitting applications for certifications, processing and approving applications and issuing notice of certifications.

Project No.	Project Name	Project Description
Project 10	Enterprise Portal and Directory	This project builds an enterprise directory to address two aspects of information systems deployment: consolidation of network and systems access, and application integration to maintain security. An enterprise directory includes a centrally managed access control system with integration at the network and application level so that once users are confirmed on the network they are able to access central files and application without subsequent logon challenges. The scope of this project is to: • Implement an enhanced statewide directory and portal to maintain contact information about DOE staff and district and school administrators and educators that require personalized access to State online applications. • Provide customized views and secure access to all State supported systems through a portal system. • Implement a set of synchronized LDAP and relational databases with distributed administration tools that maintain core information, authentication, and authorization data for school organizations and those educators (administrators) that require personalized access to State online applications. • Define and implement policies for the upkeep and use of the data and extraction and update tools to keep the directory current without duplicating data entry. • Provide interfaces to related applications. • Provide training to all users.

The table below provides a quick view of the timing of each recommended project.

Project Name	Year 1	Year 2	Year 3	Year 4	Year 5
Balanced Scorecard, Project Management and Oversight Process	X				
Division Information System and Intervention Process	X	X			
Assessment Delivery and Storage Engine		X	X	X	
Instructional Management Portal		X	X	X	

Project Name	Year 1	Year 2	Year 3	Year 4	Year 5
IT Organization and Data Governance	X				
Data Warehouse		X	X		
eGrants System	X	X			
Online Professional Development System			X	X	
Teacher Certification System			X	X	

The table below provides a rough cost estimate for each project. Some assumptions are also provided. Note that these are rough estimates and provided only to give DCPS an idea of the magnitude of effort and cost that could be expected from these efforts. Much work needs to be done to properly scope each project before a more accurate estimate can be provided for each project.

Project	Cost	Detailed Costs	Assumptions
Project 1 - Balanced scorecard, Project Management and Oversight Process	$ 110,000		
		$ 45,000	Develop Balanced Scorecard
		$ 65,000	Implementation of Project Management Process
Project 2 - Division Information System and Intervention Process	$ 411,000		
one-time costs	$ 363,000	$ 75,000	Consulting support services
annual costs	$ 48,000	$ 192,000	Reporting tool - $3 per DCPS LEA student
		$ 96,000	System integration services
		$ 48,000	Annual support fee
Project 3 - Assessment Delivery and Storage Engine	$ 1,469,000		
one-time costs	$ 349,000	$ 125,000	Consulting support services
annual costs	$ 1,120,000	$ 224,000	Professional development costs
		$ 1,120,000	Hosting $14 per year per DCPS SEA student

Project	Cost	Detailed Costs	Assumptions
Project 4 - IMS	$ 996,600		
one-time costs	$ 228,600		
annual costs	$ 768,000		
		$ 153,600	Professional development costs
		$ 25,000	Data conversion/loading
		$ 50,000	Project oversight/management
		$ 768,000	hosting cost - $12 per year per DCPS LEA student
Project 5 - IT Organization and Data Governance	$ 75,000		
		$ 75,000	Consulting support services
Project 6 - Data Warehouse Project	$ 1,446,000		
one-time costs	$ 1,326,000	$ 750,000	Consulting and implementation support costs
annual costs	$ 120,000	$ 96,000	Professional development
		$ 480,000	Data Warehouse purchase - $6 per student
		$ 120,000	Annual maintenance
Project 7 - e-Grants System	$ 708,700		
one-time costs	$ 708,700		
annual costs	$ -		
		$ 691,200	1.5 person-year effort at $120/hr (for 2 years)
		$ 17,500	professional development for districts
Project 8 - Online Professional Development System	$ 772,000		
one-time costs	$ 647,000	$ 500,000	license cost
annual costs	$ 125,000	$ 147,000	professional development (49,000 teachers, $3 each)
		$ 125,000	annual maintenance costs

Project	Cost	Detailed Costs	Assumptions
Project 9 - Teacher Certification System	$ 1,557,400		
one-time costs	$ 1,557,400		
annual costs	$ -		
		$ 1,382,400	development costs (2 FTE for 3 years @$120/hour)
		$ 150,000	consulting assistance
		$ 25,000	Data conversion/loading
Project 10 – Enterprise Portal & Directory System	$ 921,600		
		$ 921,600	development costs (2fte for 2 years @$120/hour)

4.0 Infrastructure / Connectivity

4.1 Current Environment

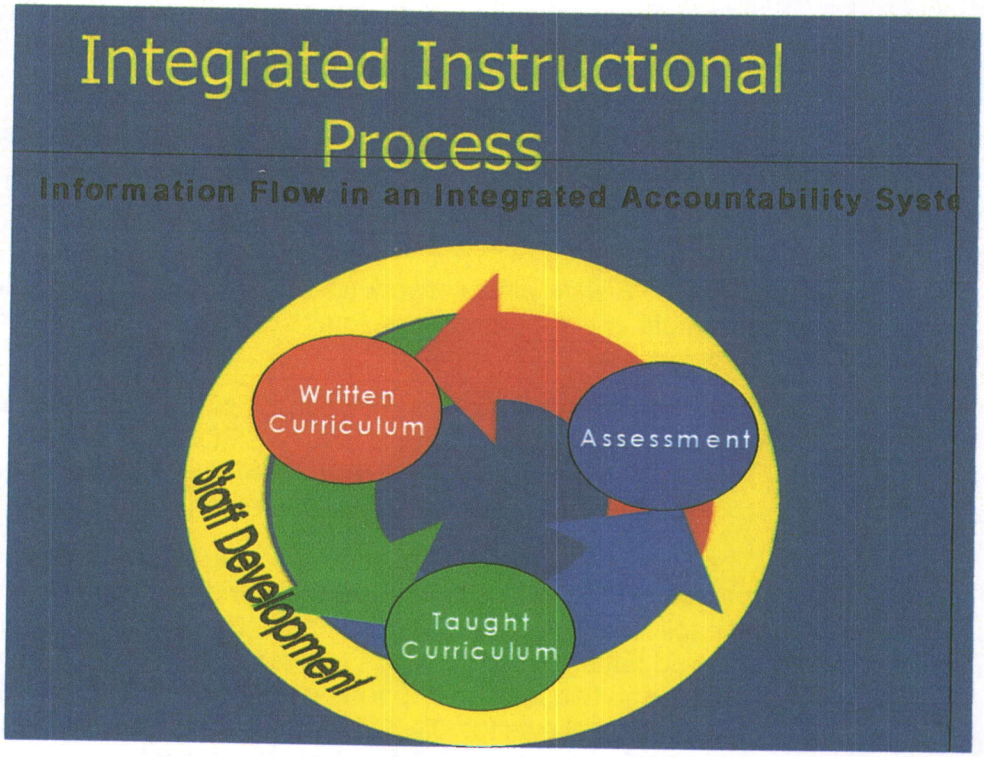
The DCPS current environment for infrastructure and connectivity can be summarized as follows:

- DCPS faces ever-growing demands in terms of human resources and the physical infrastructure, due to the increasing use of technology. Much of the technology in use today is Web-based. The increased use of the Internet and Internet-based applications has skyrocketed to support the classroom curriculum. In addition, expectations have increased for teachers and students to have access to these instructional tools 24 hours a day, 7 days a week.
- The use of the Internet and the need for 24-7 access has also become critical for the school division's operation. All staff will be able to access their salary and benefits information online. E-mail usage has grown dramatically, with usage 24 hours a day.
- Increasing Internet use and other network traffic require greater bandwidth for the classrooms and administrative offices. In addition, with systems available to all students and staff 24 hours a day, the needs for additional technology support continues to be a critical issue for schools and offices.
- The DCPS wide-area network (DCPSnet) has been upgraded, providing a minimum of a T-1 connection to all schools; secondary schools will have a minimum of DS-3 speed.
- In 2003, DCPS began a major upgrade of the wide-area network from Switched Multimegabit Data Service (SMDS) to Asynchronous Transfer Mode (ATM) network, designed to meet the educational demands while providing enough capacity for future demand.
- The migration to an ATM-based wide area network has provided many benefits to the DCPS. Increased bandwidth and load balancing capabilities have been realized. In the former network design, SMDS allowed data rates to 34 Mbps (megabits per second). The implementation of ATM supports data transfer rates to 622 Mbps. The ATM design allows for DS-3 (45 Mbps) connection to high schools and middle schools and T-1 connectivity to elementary schools. ATM can transmit video, audio, and computer data over the same network and ensures that no single type of network traffic monopolizes the total bandwidth available.

- District-wide collaboration and communication are needed in the development and implementation of common standards and the dissemination of best instructional practices across all schools; public and charter.
- An evaluation study will demonstrate the extent to which standards are being taught in all schools throughout the year.
- The district will implement a continuous improvement plan whose goal is to increase the percentage of elementary students who are proficient in reading and math from approximately forty-five percent to sixty-five percent, and secondary school performance from thirty to sixty percent proficiency based on the end-of-year tests.

The use of technology for teaching and learning, the communication of best practices, and the ongoing monitoring of performance are necessary to address the admirable and practical goals of the DCPS strategic plan.

2.2 Target Environment



The target environment for instructional technology in 2008 will include integrating technology into the implementation of the Declaration of Education. The integration of these elements are necessary for DCPS to achieve its goals in implementing standards-based achievement and instructional improvement and to engage every child in the educational process and equip them with the skills necessary for higher education and the work place. The following elements will

be in place in the DCPS public schools and will be encouraged for the charter schools for the year 2009. The components are divided into two categories; those that impact students directly and those that manage instructional improvement.

The technology and software opportunities that will be available to students are:

- **Basic technology skills instruction for all students in the middle schools.** This instruction will be the ISTE standards and prepare students to pass a technology competency test in the eighth grade. The skills will include word processing, PowerPoint, computer graphics, telecommunications, and database. Passing the technology competency exam will be mandatory.
- **Advanced courses in technology skills will be offered at the secondary level.** Offerings could include programming and graphics courses and certification programs in computer repair, networking, and database that will enable students to get technology-related jobs when they graduate. The courses will be both academic and vocational in nature and will allow students to grow.
- **Students will have access to computers with internet access at a ratio of 1:4** in labs and classrooms in each school making it possible to supply high quality technology-based instruction to all students.
- **Students will utilize standards-based software in the learning process.** Software linked to DCPS standards will be available over the district intranet to students for use in the learning of standards-based instruction. These materials will allow individualization of instruction in such critical areas as early reading, and math.

Systems that are teacher and administrator mediated that will impact instructional improvement:

- **Instructional Process System:** DCPS will have a Web-based instructional process system that will seamlessly connect the academic standards, high-quality instructional resources, formative assessment, and data analysis tools. This system will enable the district to manage the instructional improvement process centrally and will enable them to rapidly guide public and charter schools and to support teachers in the improvement of standards based teaching.
- **Assessment Delivery System:** DCPS will implement an assessment delivery and storage system consisting of reliable classroom level test items that teachers can use to assess the learning of standards. Three types of assessment will be used. Formative benchmark assessments will be used three times during the year to determine whether students are learning the standards. Having multiple data points will allow teachers and schools to modify and improve curriculum throughout the year to assure that standards are being taught. The DC-Cass annual assessment will be administered, corrected, and stored to provide results within an eight-week period. The advantage of the integrated

assessment system is that it will allow DCPS to do standards-based testing on an ongoing basis and to store high quality data to analyze trends and modify instruction. This system will address the problem DCPS has in gathering and maintaining high quality assessment data.

- **The Divisional Superintendent and Charter School Information System.** The area superintendents and the chartering authorities are the critical oversight groups for the management of schools. This system will allow the area superintendent and chartering authority to have ongoing access to information on the functioning of schools in their domain. The regional school and charter information system will be linked to the DCPS data warehouse. It is an exception reporting system that will have current data in the following areas: teacher and student absences, curriculum progress, formative assessment data, expenditure data, certification data, discipline data, and facilities information for use in to monitoring the ongoing improvement of management and instructional operations in schools.
- **Data warehouse and intelligence tools.** DCPS will develop and implement a data warehouse to store all historical academic, financial, and human resource data. The system will also have intelligence tools that will analyze, aggregate, disaggregate, and predict instructional performance. This system will be of great value to DCPS in determining trends and assisting in the making of decisions to inform instructional programs. These tools can be used at the classroom, subject, grade, school, area and district level to monitor performance and make allocation and program decisions.

2.3 Implementation of the Strategic Plan

Objectives

The main instructional objectives of the plan are:

- to provide students with accessibility to and skills in the use of technology
- to provide educators with an ongoing instructional process system to efficiently plan and deliver instructional improvement. The instructional component of the technology plan is based on the premise that the use of integrated instructional management, assessment, and data-driven decision-making tools are necessary to accomplish the goals of the declaration of education and cannot be done without it.

Needed Policies

The following policies are needed for the instructional use of technology to be effectively implemented:

- The management of the instructional process system must be centralized in the curriculum office, with a group that has responsibility for management of the system and the selection and jurying of high quality curriculum materials.
- All public schools must be required to utilize the core components of the instructional management system.
- Technology competency standards must be required for both teachers and students.
- Academic and certification programs in computer science and technology must be offered at the secondary level.
- Charter schools should be allowed but not required to use the instructional process system. Under the terms of the chartering authorities schools are not required to utilize or to make technology program offerings or establish required technology access. However there should be a policy allowing the charter schools to use Web-based instructional improvement tools if they so choose.

Priorities of Implementation

The implementation process of the instructional facets of the technology plan is critical to the execution of instructional improvement and accountability. The instructional process system including standards, curriculum, and assessment and data analysis tools is core to the accomplishment of the mission of the declaration of education. This system must be grown and implemented gradually to avoid resistance and to allow for changes as it becomes implemented. The gradual approach to implementation has the following components:

- piloting of a system in the coming year to determine viability and specifications
- initiating system use in the AYP schools where high quality curriculum and centralized control are necessary
- implementing the system in each school over a three-year periods that a critical mass of support can be grown gradually, while resistance can be minimized

The availability and use of technology for students must be done systematically. Awareness is needed of both the scarcity of skilled teaching resources and the importance of basic technology competency for all students.

- Technology competency standards and curriculum will be developed over the next two years. When complete, there will be technology curriculum and required competency test in all middle schools.

- A percentage of high schools will have opportunities in academic computing such as advanced programming. Also a group of schools will offer certification programs that will prepare students for technical careers in such areas as network management.
- Over time, network-based curriculum offerings will become a main way of individualizing instruction.

The implementation of the instruction will occur in the following order:

Year	Technology for Students	Systems to Support Standards-based teaching and Learning
2005-06	• Establishment of student technology standards • Development of secondary technology certification programs	• Piloting of instructional process system in each area • Piloting of formative assessment system • Purchase of 3-tier test delivery system • Establishment of instructional portal • Piloting of area and charter information system.
2006-07	• Establishment of programming, graphics and business courses in 40% of high schools • Establishment of computer access at the 1:4 ratio level in 1/3 of DCPS schools	• Use of instructional process system in all schools that are in the 2nd year of AYP • Development of a group to define best instructional practices and put them on the internet • Use of the instructional process system with 1/3 of teachers in all schools • Implementation of the area and charter school information system in one district and one charter school authority
2007	• Implementation of technology curriculum in 50% of middle schools • Establishment of computer access at the 1:4 level in ¼ of the schools	• Use of the instructional process system with 2/3 of teachers in all school

Year	Technology for Students	Systems to Support Standards-based teaching and Learning
2008	• Implementation of technology curriculum in 50% of middle schools • Establishment of computer access in ¼ of the schools at the 1:4 ratio	• Use of the instructional process system with all teachers in the school system • Implementation of the area and charter school information system in the remainder of the districts.
2009	• Piloting of technology competency test • Establishment of the computer access at the 1:4 ratio in ¼ of the schools	•
2010	• Formalization of technology competency tests for all 8th graders	•

3.0 Staff Development

3.1 Current Environment

Currently staff development is strongly influenced by three contextual issues:

- The historic linkage of staff development to the goals of site-based management, which has placed staff development under the aegis of the local school. Time is provided for staff development at each school throughout the year, but these staff development sessions are linked to school rather than district-wide goals. Although some schools offer staff development in the use and integration of technology, it is not required.
- University courses which are related to the teachers' contract are the main form of current professional development activities.
- The recent adoption of the new rigorous DCPS academic standards and the Declaration of Education places an obligation on DCPS to provide teachers with system-wide staff development focused on the implementation of the new standards. The previous section of this plan on instruction illustrates that technology is so integral to the achievement of DCPS' strategic instructional objective, that both staff development in technology use and the use of technology-delivered staff development to address academic standards will be necessary.

Staff development in the public schools of DCPS is not yet linked to the new goals and strategies of the Declaration of Education. Currently 25% of teachers and 40% of administrators are not certified. Further, 53% of schools are not in compliance with the NCLB requirement for annual yearly progress and there is limited knowledge of the new standards by DCPS educators. The current situation provides an opportunity to re-align the staff development program so that it is tightly linked to standard-based instructional improvement efforts. Staff development needs to become the key tool by which educators learn to use instructional process technology and are able to implement the new standards-based curriculum.

3.2 Target Environment

In 2009, there will be an ongoing program of staff development driven by the goal of improving the quality of staff to gather improved student outcomes. The staff development program will be based on the following underlying assumptions:

- Professional development will be driven by the results of academic performance
- Professional development will be individualized to the job related needs and performance of each administrator

- There will be two types of technology programs:
- Programs that utilize technology to address content standards, instructional improvement and accountability
- Programs utilizing technology to train, and monitor staff in the improvement of standards based teaching and management

Programs focused on utilizing technology to address content standards and standards-based teaching:

- There will be classes and on-line delivered courses in each content standards area for teachers in all DCPS LEAs, in the first two years of the new standards implementation for each content area.
- There will be on-line delivered courses for provisional teachers who are not yet certified to provide them with model curriculum, mentoring, and standards knowledge.
- There will be a database of best practice lesson and unit plans and model scope and sequence courses on the DCPS instructional process system. This system will be available to all new teachers in all of the DCPS LEAs.

Programs focused on technology use:

- For Administrators: There will be on-line and face-to-face courses for new and not fully certified administrators. These courses will focus on the mastery and use of all administrative systems for a building including; student information systems, certification and professional development, budgeting and finance systems, the instructional process system and staff evaluation systems.
- All new teachers will be required to either demonstrate technology competency by passing the eighth grade technology competency test for students. This will focus on word processing, spreadsheets, databases, telecommunications, and presentation tools.
- There will be classes and Web-based instruction in the use of the DCPS instructional process systems. Demonstration of competency in the use of the system will be required by all teachers at the end of their first year and by all veteran teachers when they are recertified.
- There will be a centrally run help desk and mentoring system for use of the instructional system.

Core systems to support the ongoing professional development effort

The Web-based recruitment, certification, and professional development planning and monitoring system which will be accessible to all LEAs who wish to use it. The system will plan and document professional development of teachers and track their progress toward re-certification.

- There will be clearly defined standards from the DCPS-SEA for teacher evaluation systems in the LEAs.
- A Web-based recruitment and application system that will automate the initial certification and employment process. This system will be used for all DCPS teachers including both those in the public and charter schools.
- A system for planning appropriate professional development aligned to licensure and assessment results and the nature of their students.
- This system will track all recruitment efforts and maintain the certification of all teachers.

3.3 Implementation of the Strategic Plan

Objectives

The objectives of the professional development program are as follows:

- To assure that teacher have the necessary pedagogical skills to conduct a program of standards-based instruction and accountability
- To provide ongoing job-related growth for all staff
- To assure that administrators have skills necessary to manage a standards-based instructional improvement program and maintain an orderly school
- To assure that all teachers and administrators are highly qualified
- To assure that all teachers and administrators possess the technology skills necessary teach and manage

Strategies

The strategies which will be utilized in addressing staff development by each LEA are:

- The use of Web-based assessment and individualized Web-based instruction to meet technology standards.
- The establishment of professional development plans for each professional staff member based on the performance of their students, their certification status, and their subject matter knowledge.
- The delivery of ongoing Web-based and teacher delivered courses in the use of content standards.
- Collaboration with local universities and private training firms to deliver professional development courses for teachers

- The board will allow LEAs to establish of a tiered system of professional status for teachers including novice teachers, professional teachers and master teachers. Each level will have requirements for entry and exit.
- Provide initial staff development for all new agency resources.
- Provide Technology Consultation Services to LEAs.
- Develop support materials for staff development initiatives provided by DCPS and making them accessible to other LEAs.
- Provide staff development opportunities for all LEAs in the areas of technology and standards based teaching
- Provide statewide cost and access to online technology staff development through the DCPAS intranet for all LEAs
- Research and identify best practices for delivering high-quality technology staff development
- Provide ongoing best practices and high quality instructional resources through the DCPS instructional process portal for all LEAs

Needed Policies

- The SEA board must to establish a policy requiring an annual professional development plan for all staff in each LEA, based on the performance of the taff member, and the accomplishment of standards
- Each LEA will require teachers to demonstrate competency in the use of technology related to instruction.
- 30% of all application budgets will be dedicated to staff development
- The board will require all LEAs to establish competency requirements for administrators to demonstrate competency in the use of educational management systems and systems related to data-driven decision-making.
- All new teachers and administrators will have one year from the commencement of employment to demonstrate competency.
- The SEA Board will require each LEA to establish requirements for ongoing professional development related to recertification and or ongoing employment.

Implementation Plan and Timeline

Year	Programs utilizing technology for staff development in standards-based content	Programs providing competency in technology	Core Systems
2005-06	• Piloting of administrator course on system • Delivery of training programs on standards • Piloting of best practice instructional materials on DCPS instructional process systems	• Establishment of technology competencies for teachers • Piloting of online course on technology competencies	• Development of an RFP the certification component of the recruitment and certification system • Development of an RFP the professional development tracking system. • Development of an RFP the recruitment part of the system
2006-07	• Establishment of help desk on instructional process system for provisional teachers	• Implementation of technology competencies for first year teachers.	• Piloting of the professional development system • Piloting of the certification system • Full implementation of the recruitment system
2007-08		• Implementation of technology competencies for recertification teachers	• Full implementation of the professional development and certification systems.

- The ATM design offers the following: hierarchical design, scalability, dynamic routing protocol, security, high reliability, performance, network addressing, and Institutional Network (I-NET) compatibility. All of these ATM design attributes allow DCPS to efficiently manage the WAN.
- Many mission-critical systems have been migrated to the Internet,
- All identified classrooms and learning spaces are being wired for connection to the Internet.
- District-wide site licenses for core software were purchased, ensuring consistency in software versions throughout DCPS.

The DCPS Network Architecture and Standards is summarized as follows:

- Microsoft Windows 2000 Advanced Server is the network operating system software that is the basis for the delivery of network services in DCPS. The directory services component of Windows 2000 Advanced Server, Active Directory, is the foundation on which network services are organized, managed, and supported.
- The implementation of a single network login for access to network resources by students, faculty, and staff.
- A flexible network in which a network user may access network resources to which they are authorized from any networked workstation.
- All network hardware (switches and routers) and servers are deemed mission critical in support of the instructional programs and administrative requirements of DCPS. The architecture stipulates that these devices be configured for high availability and high recoverability.
- TCP/IP is the supported network protocol in DCPS. A private IP addressing scheme is used to support the large number of network devices in DCPS.
- In conjunction with the use of a private IP addressing scheme, the network architecture includes a centralized Network Address Translation (NAT) capability.
- The network architecture specifies a 1 Gbps network building backbone and the implementation of Layer 3 Ethernet switching technology in schools, centers, and administrative offices.
- Dynamic Host Configuration Protocol (DHCP), Virtual Local Area Network (VLAN), and Transparent Proxy services are delivered via Layer 3 Ethernet switching technology.
- Distributed Layer 2 Ethernet switching technology is deployed in schools, centers, and administrative offices.
- Each networked personal computer has a dedicated 100 Mbps switched Ethernet connection.